FIG.1

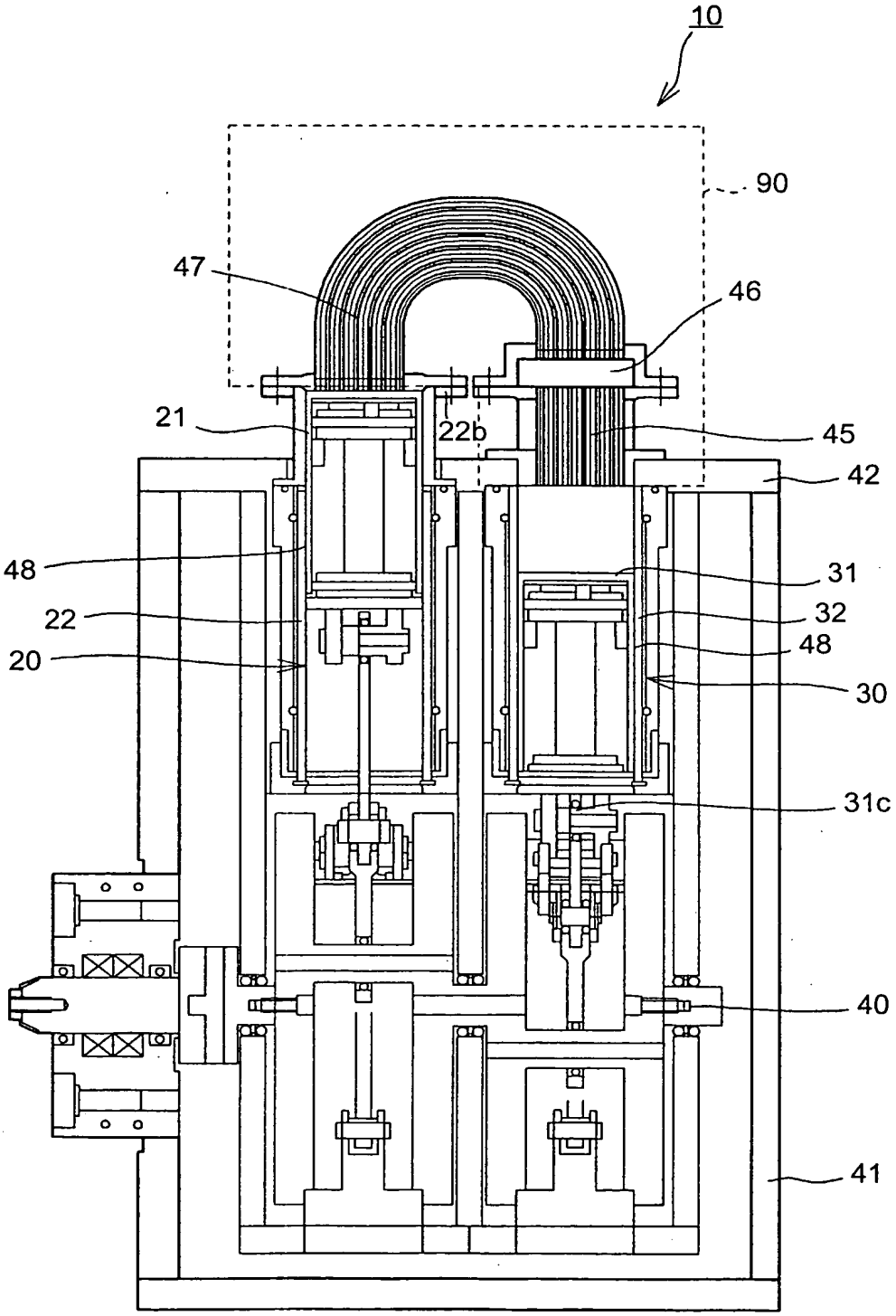

FIG.2

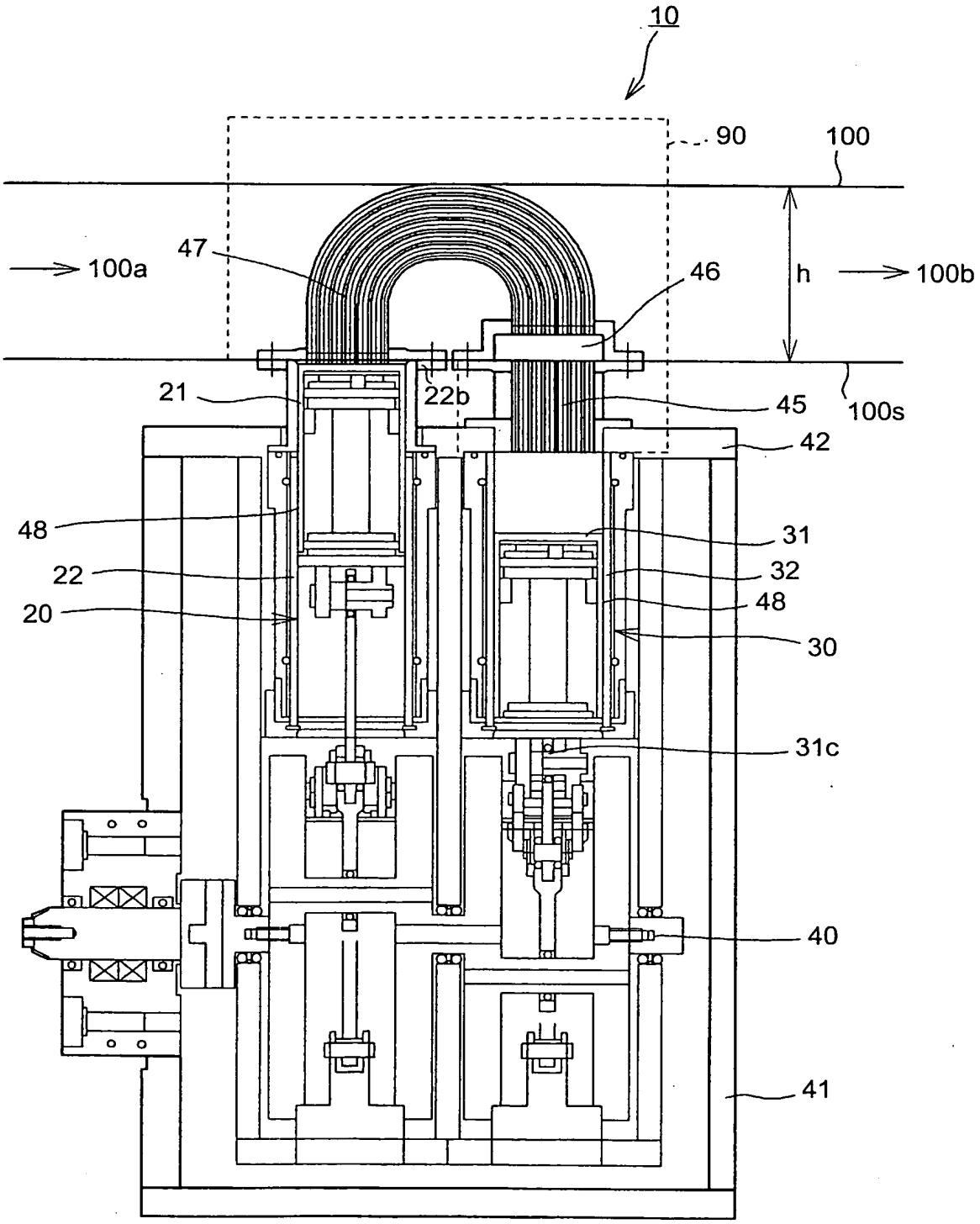
10
90
100
100a
47
46
h
100b
21
22b
45
100s
42
48
31
22
32
20
48
30
31c
40
41

FIG.3

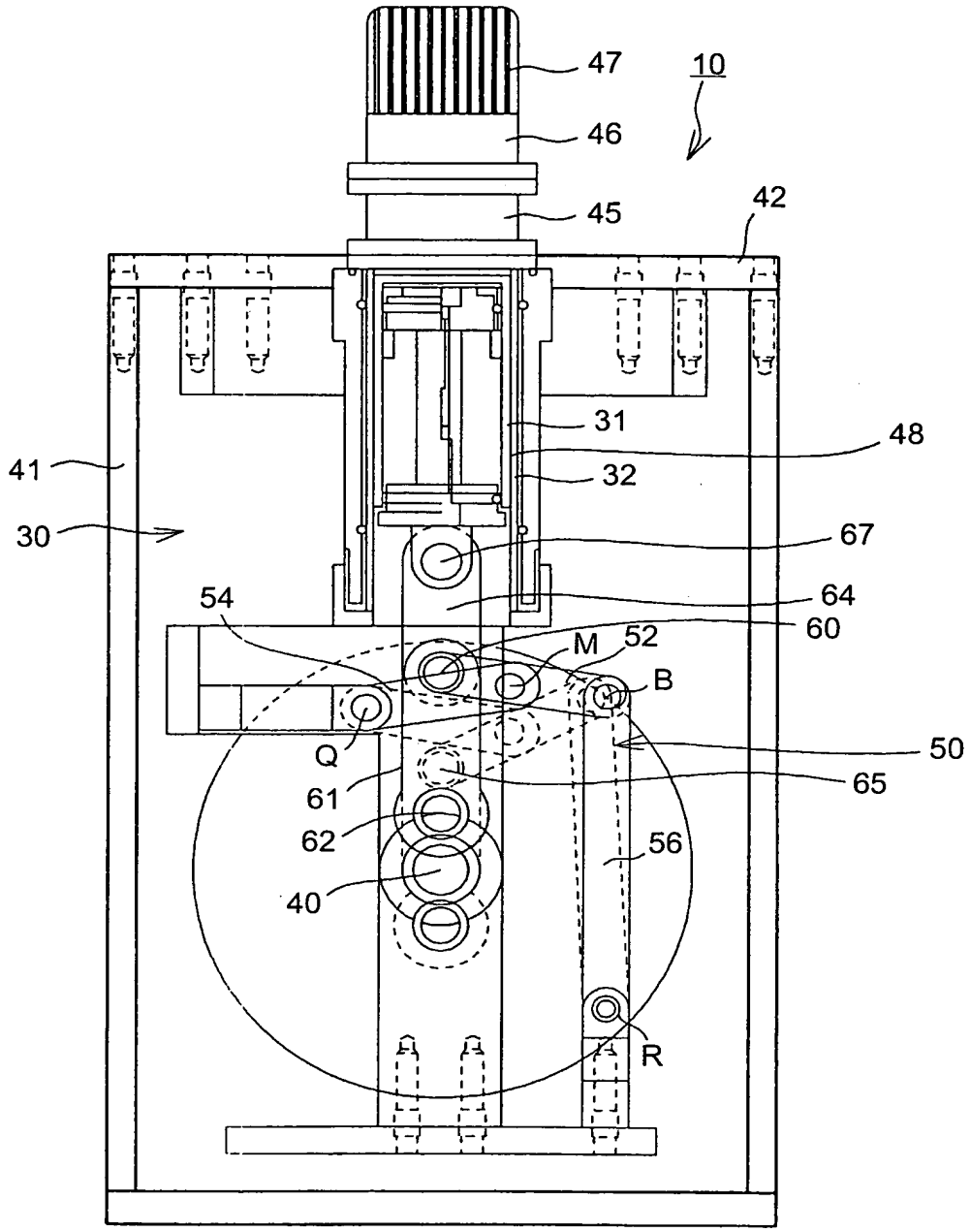

FIG.4

Conventional art

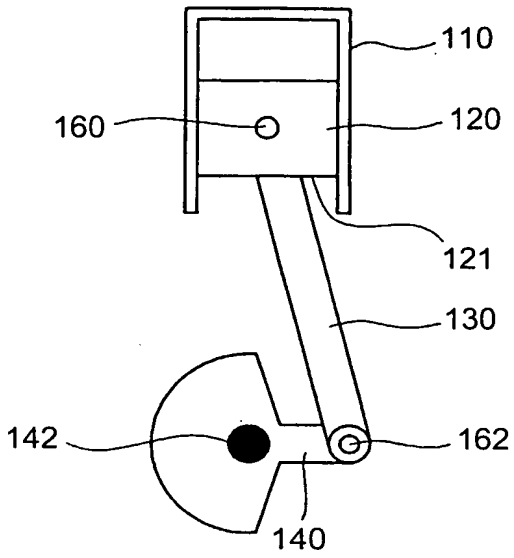

FIG.5

Embodiment

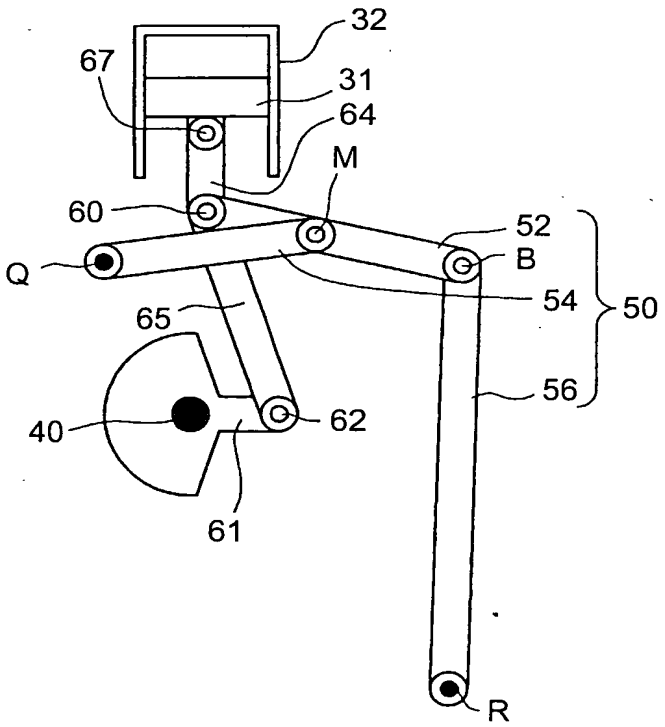

FIG.6

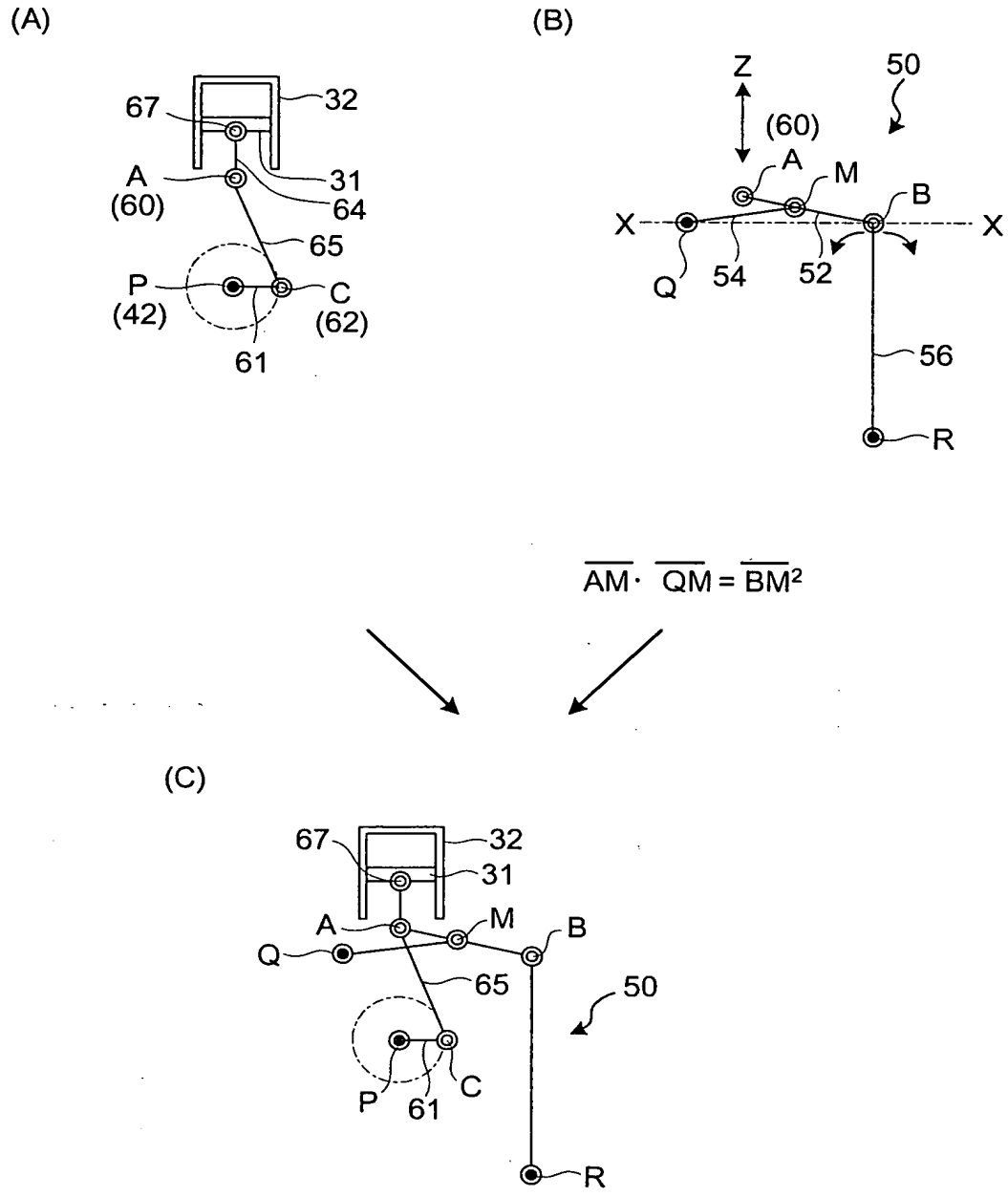
(A)
67
32
A
(60)
31
64
65
P
(42)
C
(62)
61
(B)
Z
50
(60)
A
M
B
X
X
Q
54
52
56
R
$\overline{AM} \cdot \overline{QM} = \overline{BM}^2$
(C)
67
32
31
A
M
B
Q
65
50
P
61
C
R

FIG.7

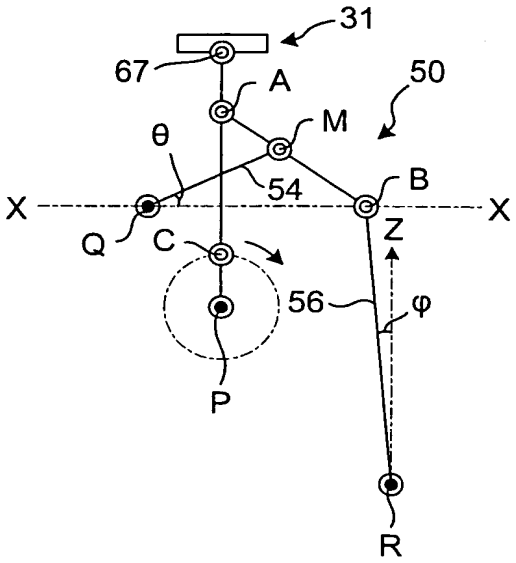

FIG.8

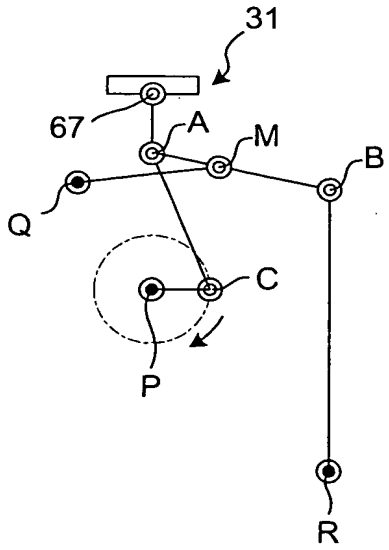

FIG.9

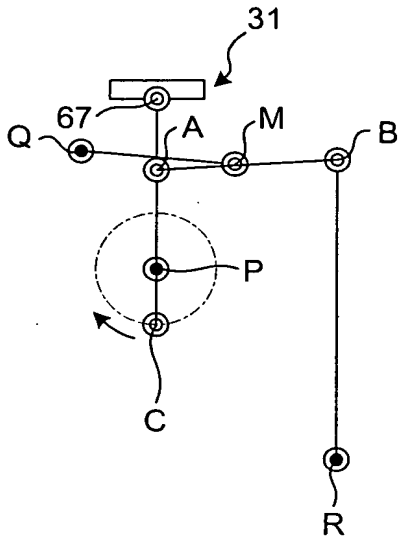

FIG.10

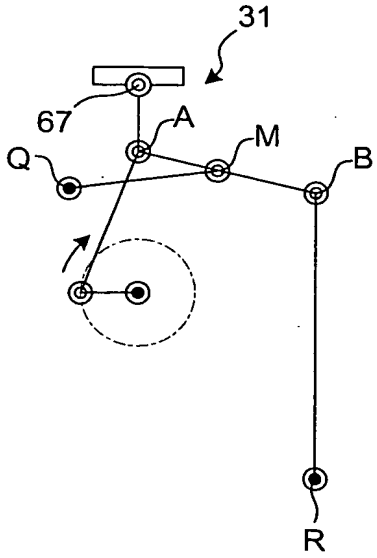

FIG.11

Stroke	36	[mm]
LINK RELATIVE (AC:PC)	3	[--]
AB	54	[mm]
AM	22	[mm]
BM	32	[mm]
QM	46.55	[mm]
RB	110	[mm]
θ	8.8 ~ -17.9	[°]
ϕ	0 ~ 2.2	[°]

FIG.12

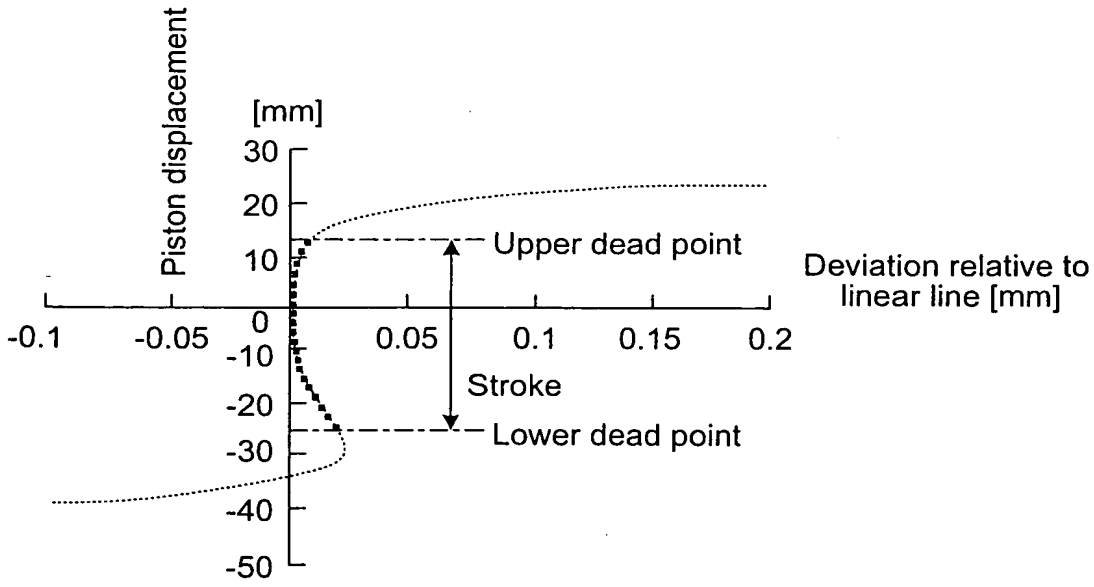

FIG.13

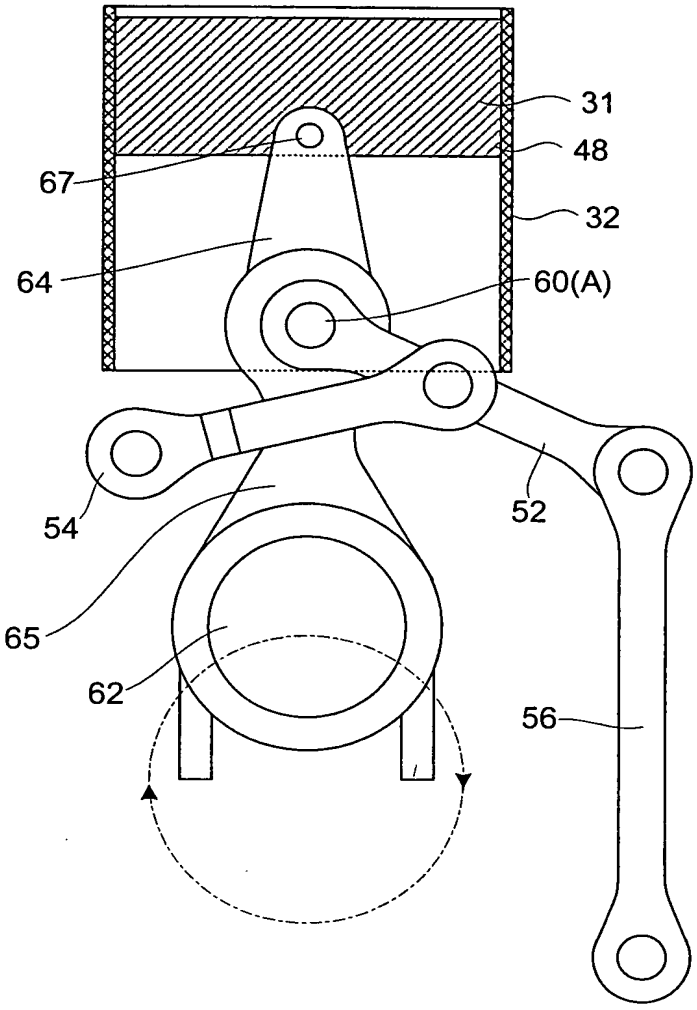

FIG.14

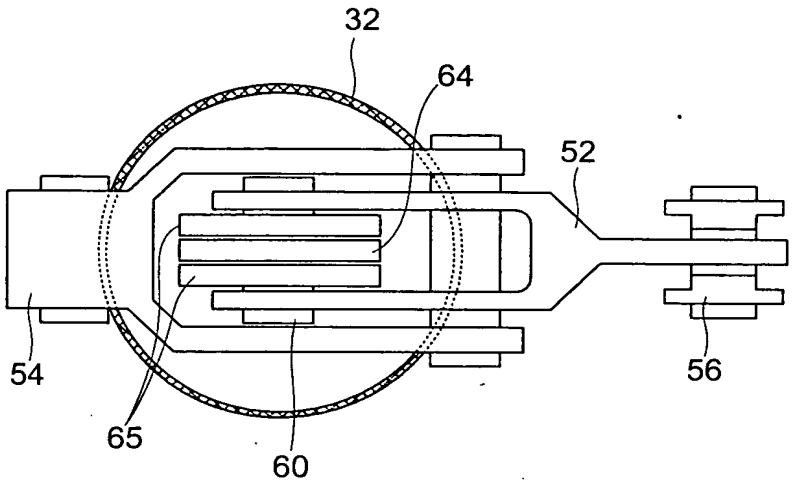

FIG.15

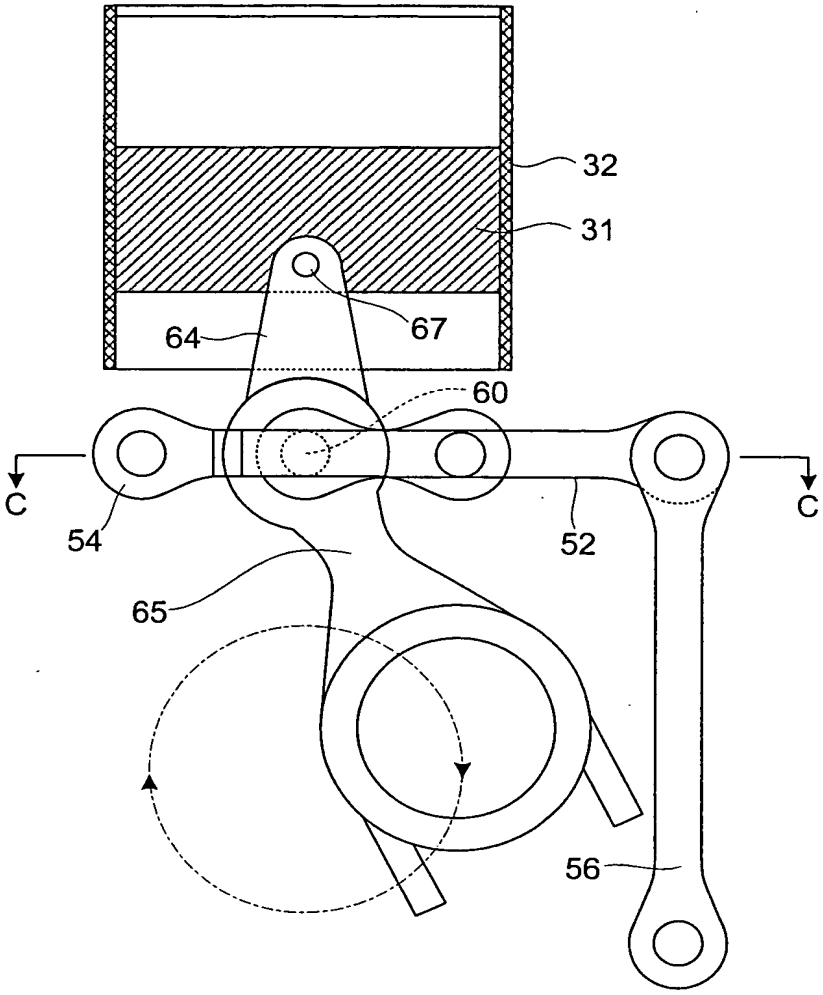

FIG.16

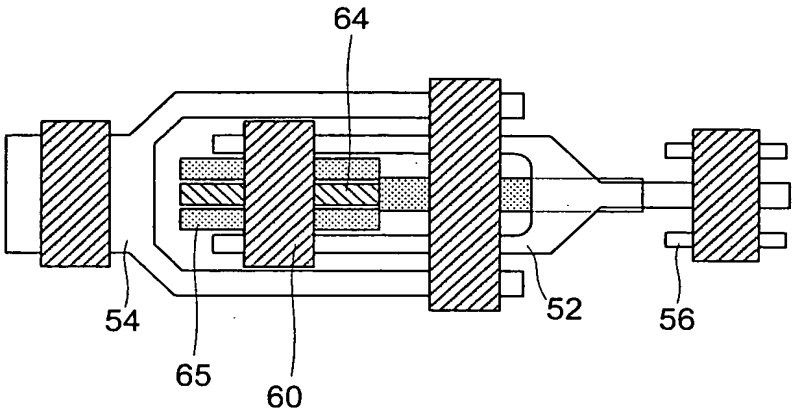

FIG.17

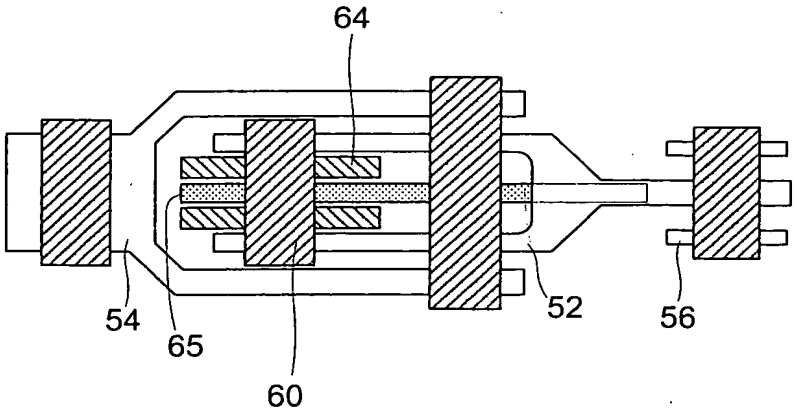

FIG.18

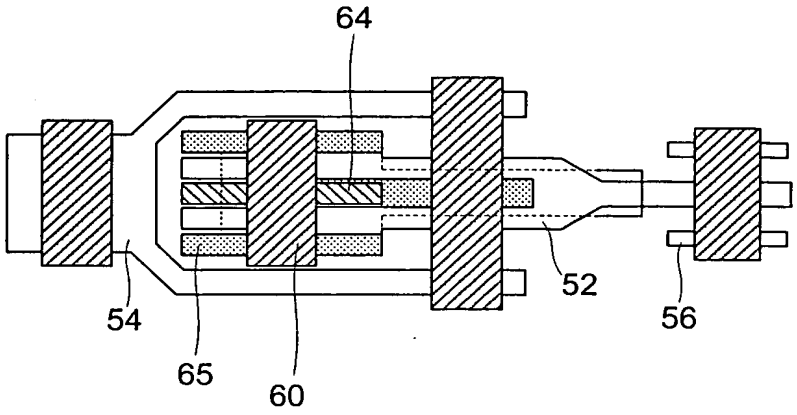

FIG.19

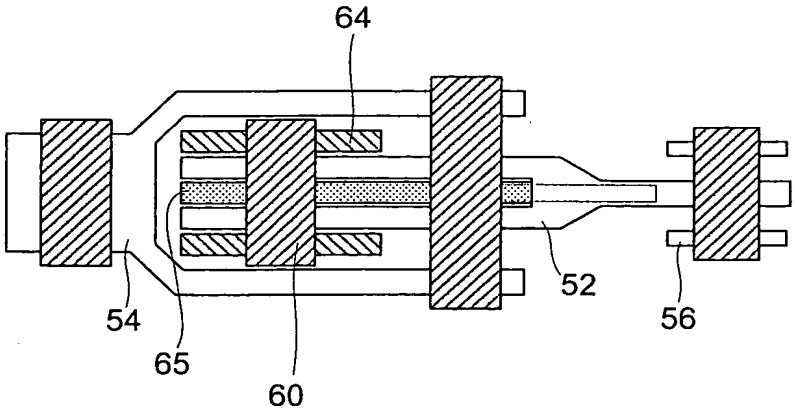

FIG.20

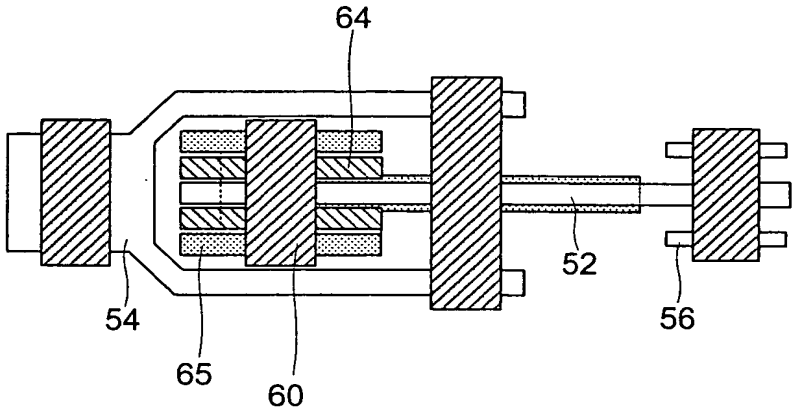

FIG.21

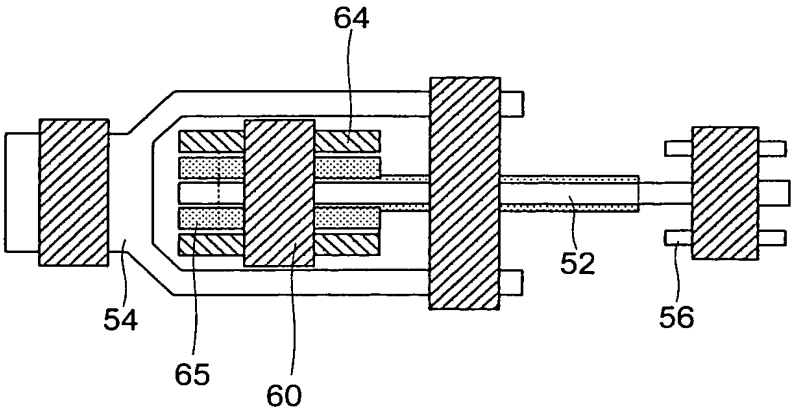

FIG.22

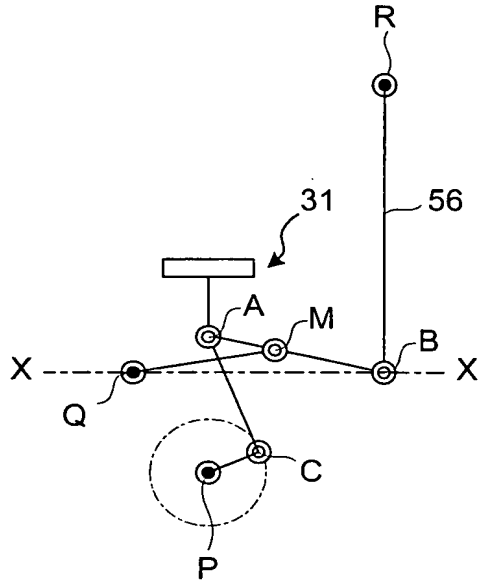

FIG.23

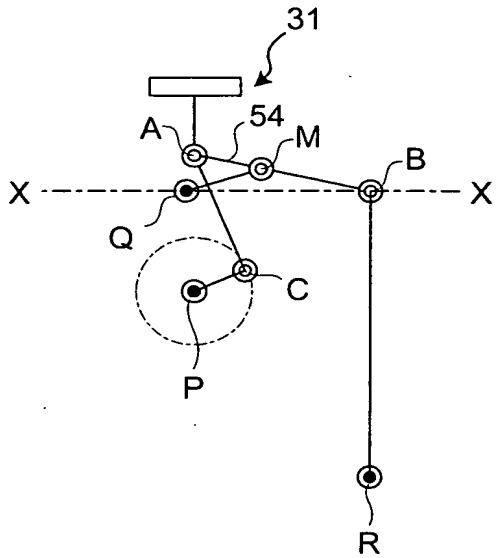

FIG.24

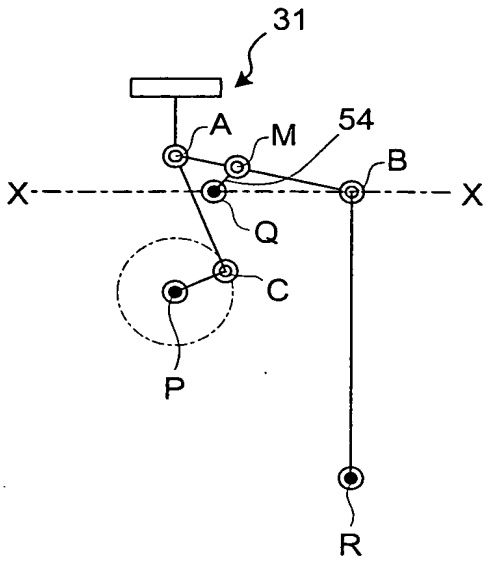

FIG.25

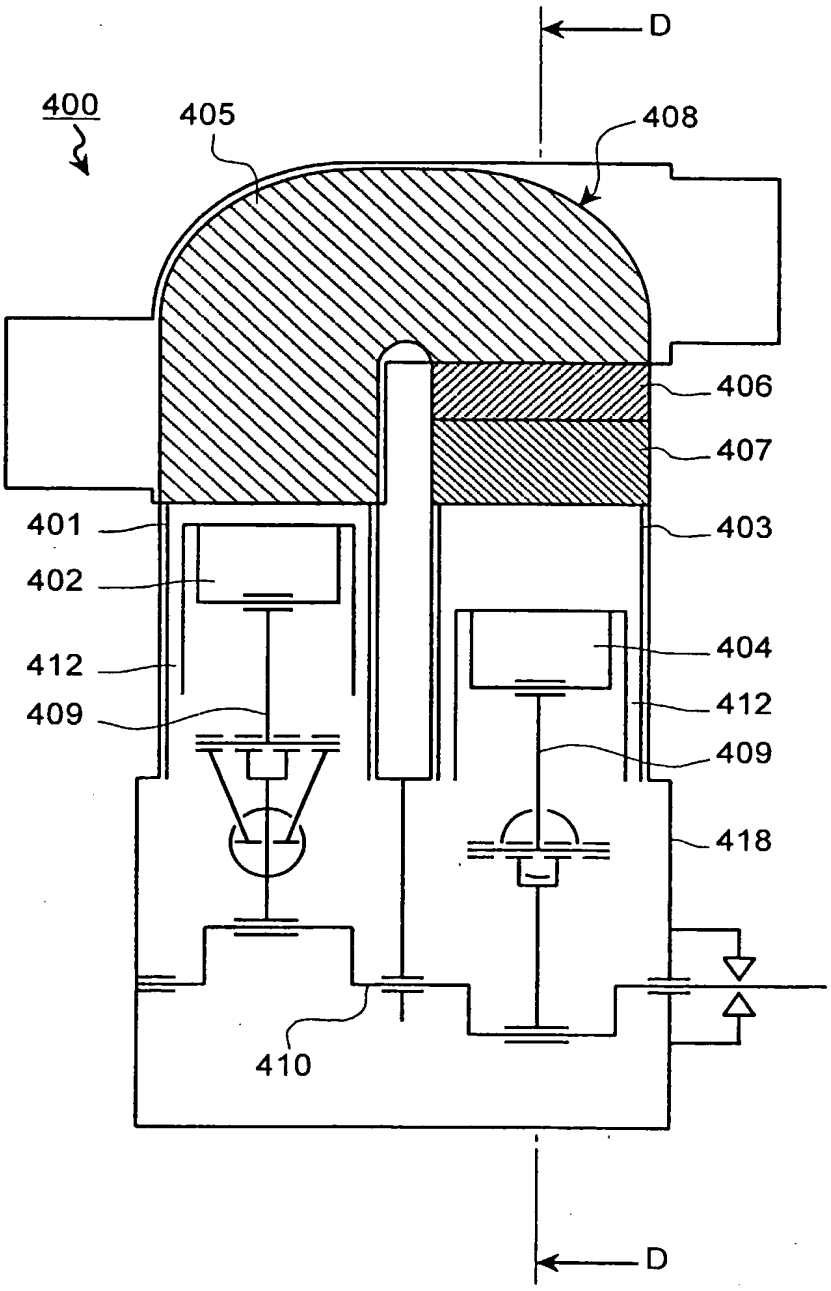

FIG.26

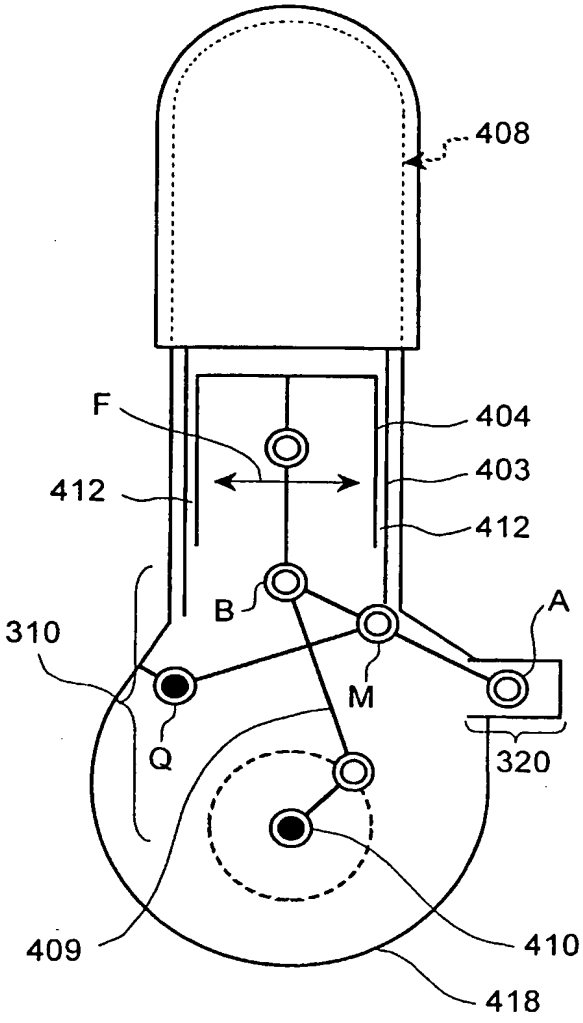

FIG.27

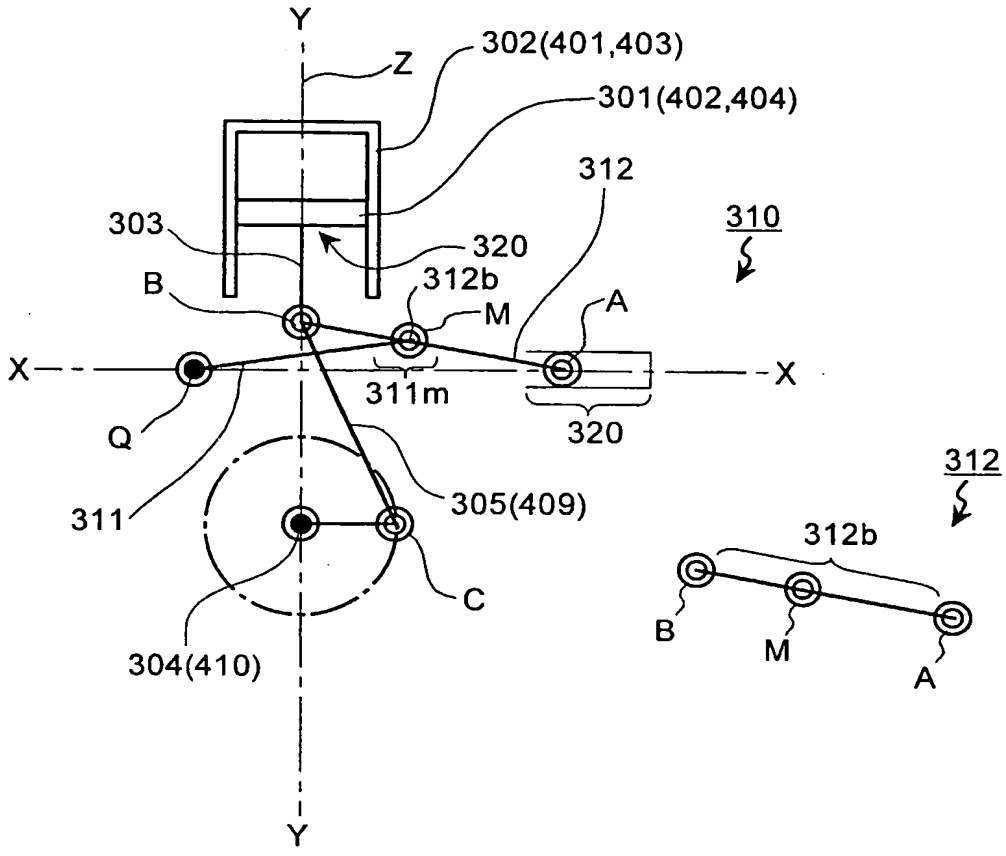
Y
Z
302(401,403)
301(402,404)
312
303
320
310
B
312b
M
A
X
X
311m
Q
320
312
311
305(409)
312b
C
B
M
A
304(410)
Y

FIG.28

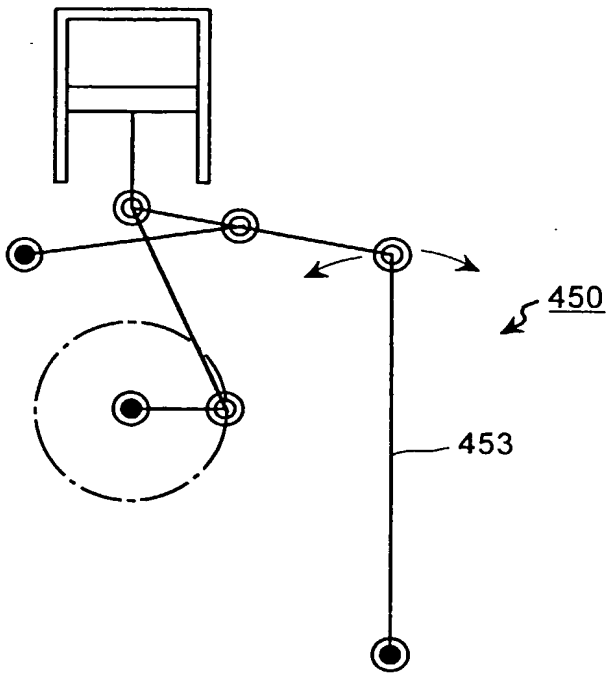
450
453

FIG.29

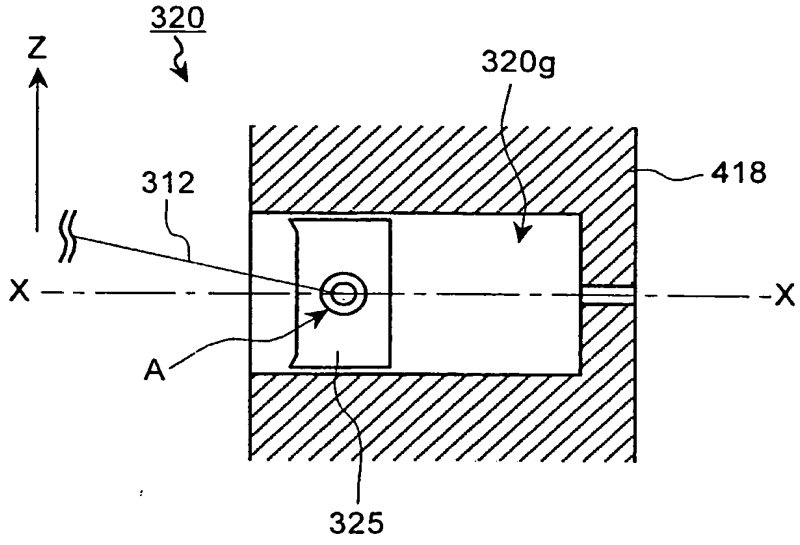

FIG.30

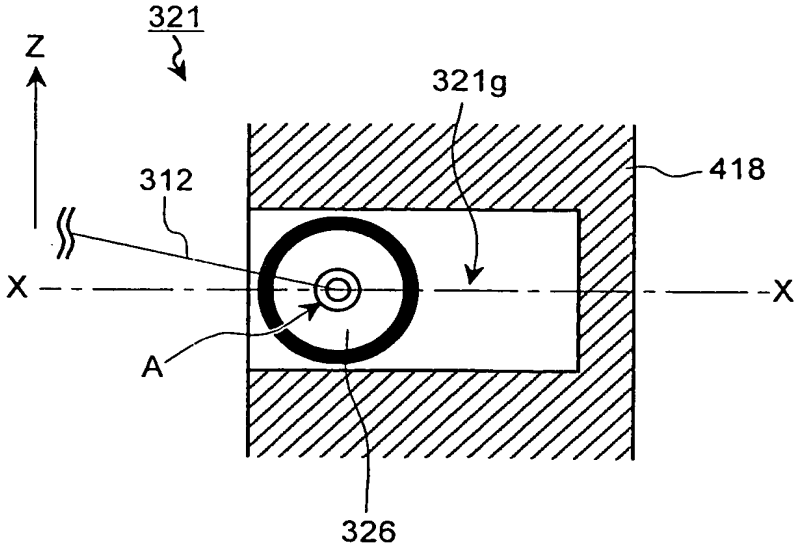

FIG.31

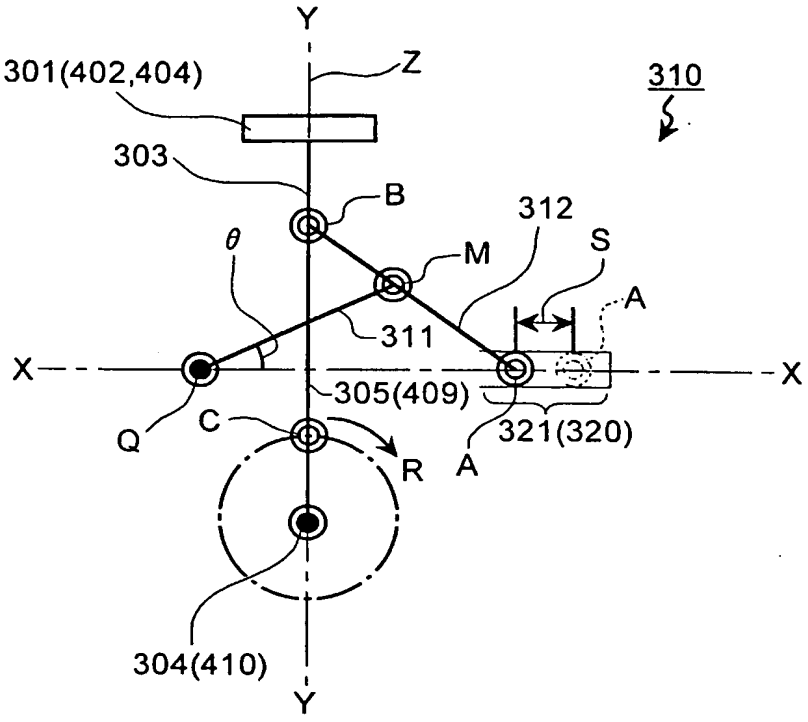
Y
Z
301(402,404)
310
303
B
312
θ
M
S
A
311
X
X
305(409)
Q
C
321(320)
R
A
304(410)
Y

FIG.32

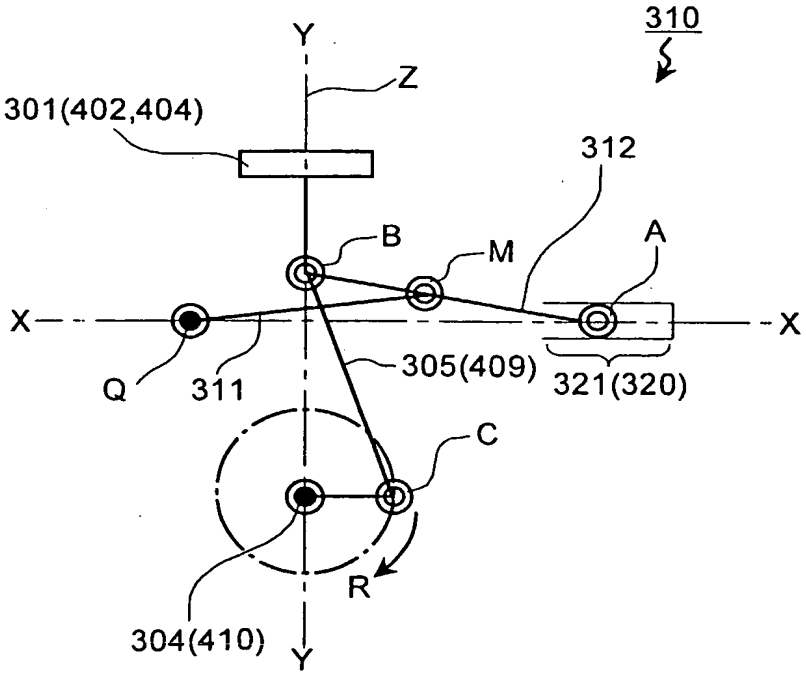
Y
310
Z
301(402,404)
312
B
M
A
X
X
Q
311
305(409)
321(320)
C
R
304(410)
Y

FIG.33

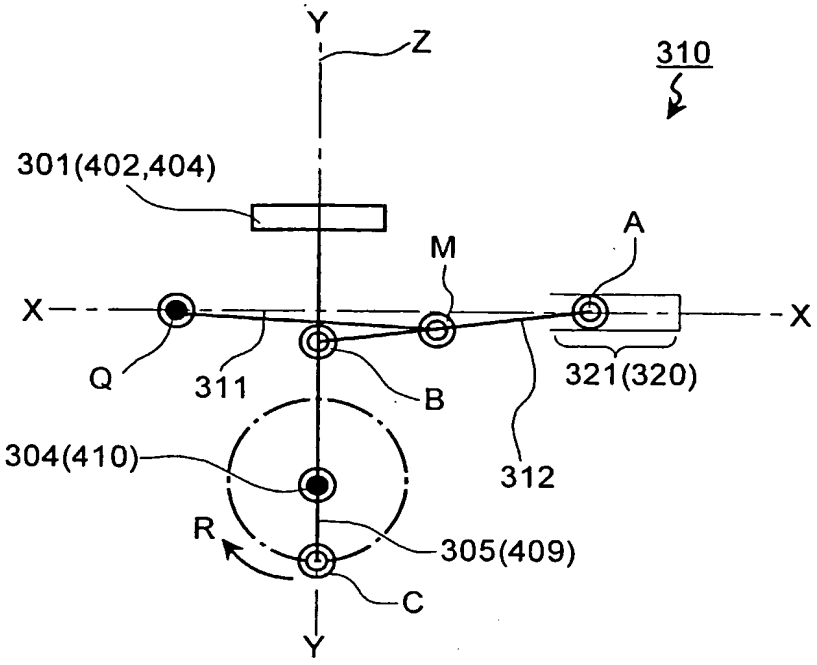
Y
Z
310
301(402,404)
A
M
X
X
Q
311
B
321(320)
304(410)
312
R
305(409)
C
Y

FIG.34

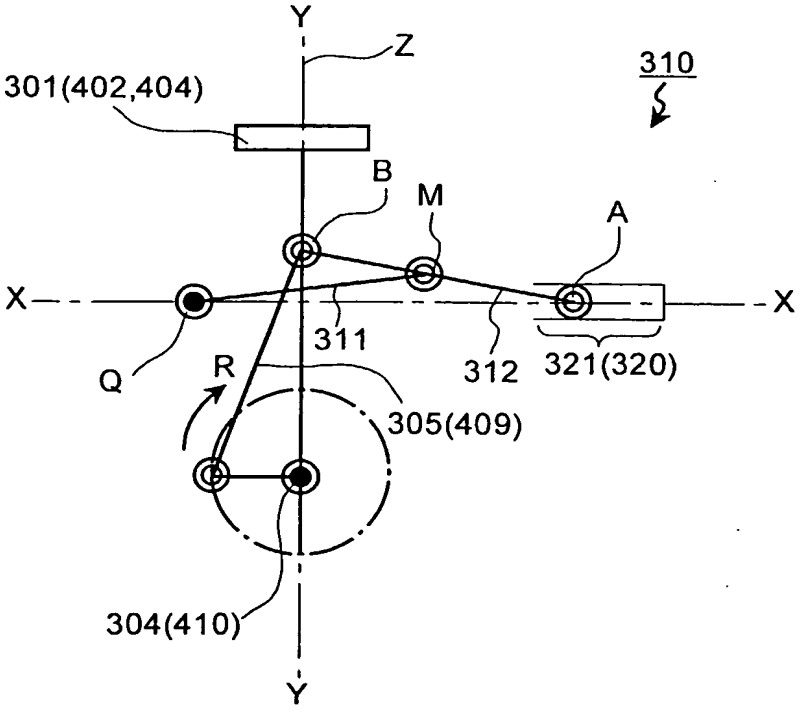
Y
Z
310
301(402,404)
B
M
A
X
X
311
Q
R
312
321(320)
305(409)
304(410)
Y

FIG.35

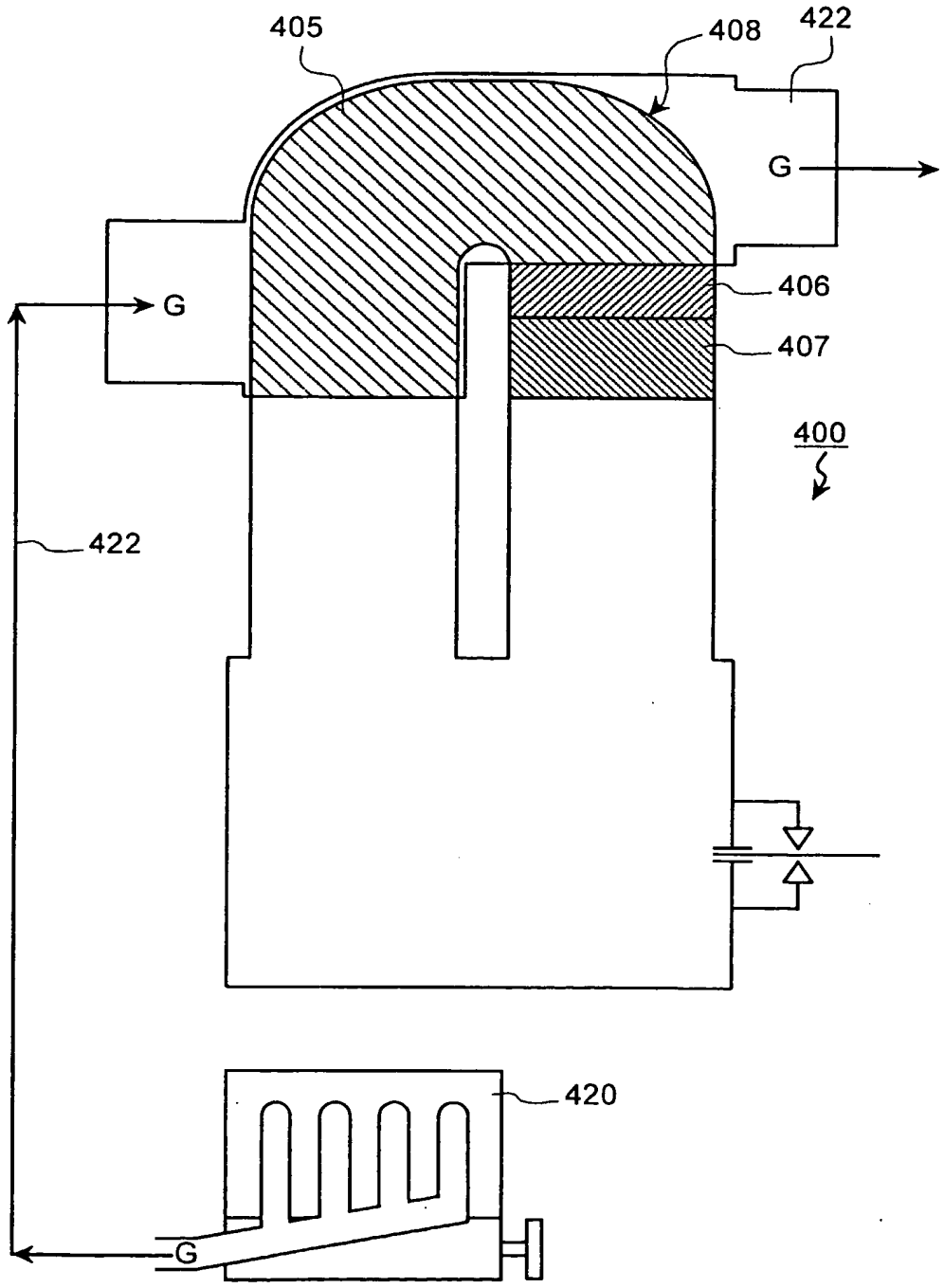

FIG.36

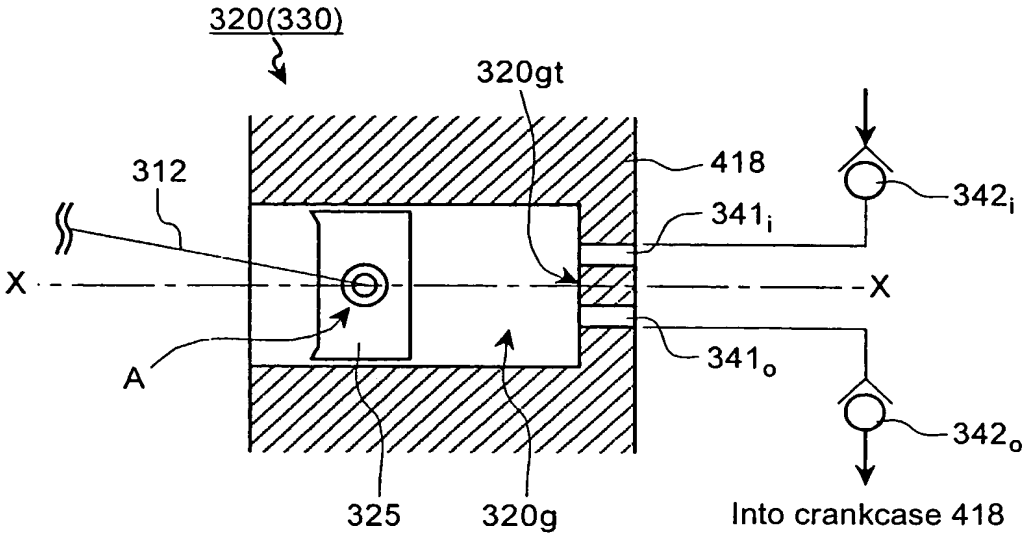
320(330)
320gt
312
418
342_i
341_i
X
X
A
341_o
342_o
325
320g
Into crankcase 418

FIG.37

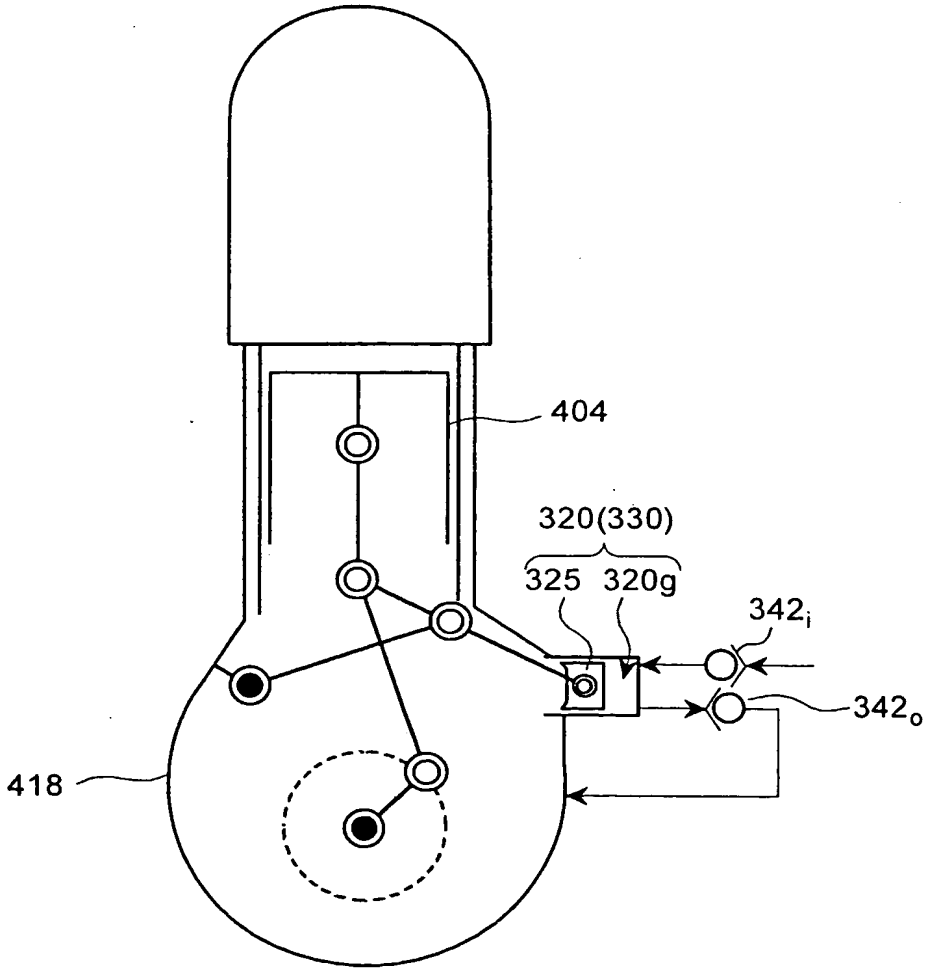
404
320(330)
325
320g
342_i
342_o
418

FIG.38

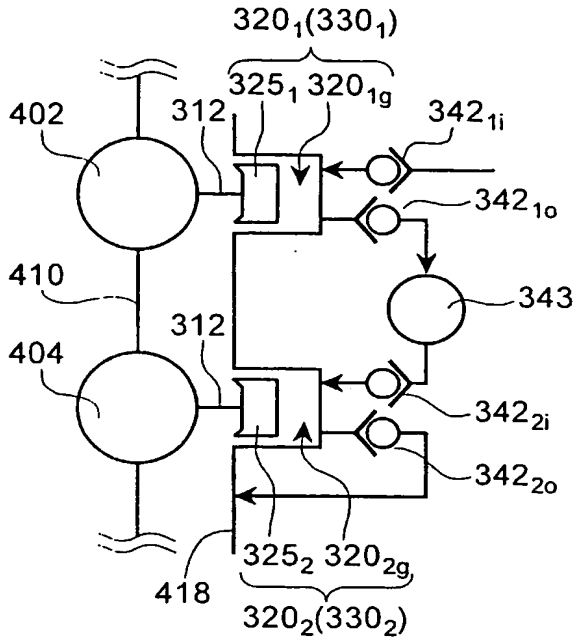
$320_1(330_1)$
325_1 320_{1g}
402
312
342_{1i}
342_{1o}
410
343
312
404
342_{2i}
342_{2o}
325_2 320_{2g}
418
$320_2(330_2)$

FIG.39

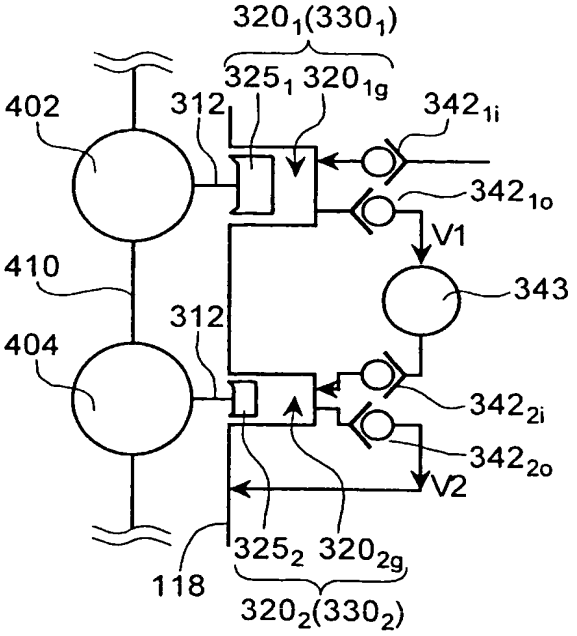
$320_1(330_1)$
325_1 320_{1g}
402
312
342_{1i}
342_{1o}
V1
410
343
312
404
342_{2i}
342_{2o}
V2
325_2 320_{2g}
118
$320_2(330_2)$

FIG.40

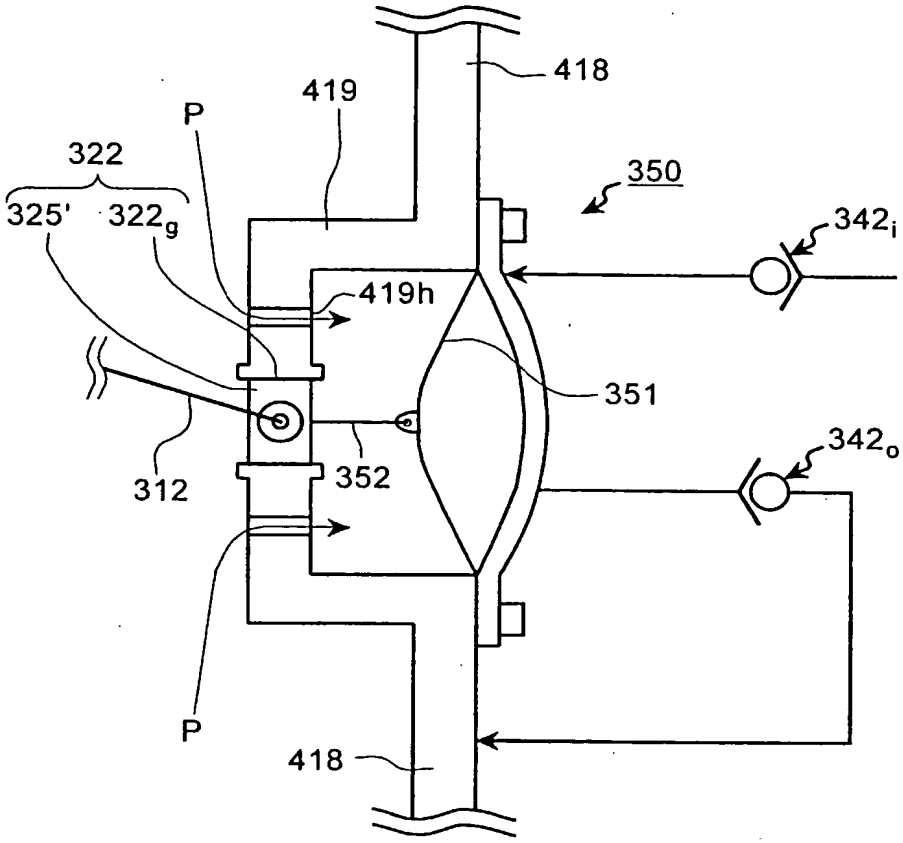
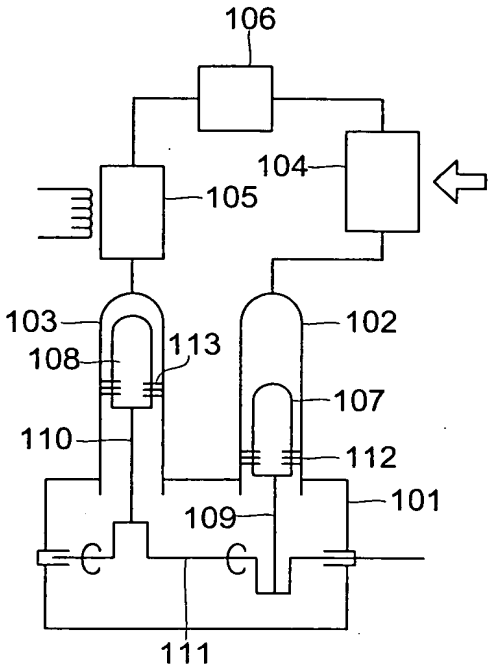
FIG.41